Very full and complete indices of subjects and authors conclude the volume.

The time and labor expended merely in the collection of the material contained in this publication must have been enormous. Some faint conception of this may perhaps be gained on learning that no less than two thousand two hundred and twenty-two authors are referred to or quoted in its pages, exact reference to their writings being given in all cases.

The style throughout is scholarly and lucid. The treatment of the subject-matter is fair and impartial. No pains have been spared to make this work a standard one; beyond question, von Lippmann's Chemie der Zuckerarten is a classic of chemical literature.

FERDINAND G. WIECHMANN.

SCIENTIFIC JOURNALS.

AMERICAN JOURNAL OF SCIENCE.

THE March number contains three articles upon the subject of the Röntgen rays, which has excited so much interest during the past month. The first of these is by A. W. Wright. After a brief history of the subject, the author describes in some detail the experiments which have been performed at the Sloane physical laboratory in New Haven. These have yielded results similar to those described elsewhere, but with a remarkable degree of refinement. Examples are given of a picture made from an aluminum medal, in which the relief on both sides is shown, also the lettering and milling around the edge. It is stated that in the original negative it is almost possible to decipher the individual letters. The details are given of the special methods which have been found most successful in yielding good results. Some of the typical pictures obtained are given on an accompanying plate. A second plate shows the impressions given upon a sensitive surface by diverging stream lines through two parallel slits in a copper plate. Three experiments were performed: first, with both slits open simultaneously; second, with only one open at a time, so that the streams were independent; and third, with the two streams passing by a powerful magnet. The first two showed very little, if any, distinct action between the streams themselves as regards their direction. The effect of the magnet in the third case was also negative. In another experiment, however, in which a very thin gold leaf was interposed in the path of the rays, a deflection by the magnet of about half a degree was observed, due to the loading of the streams with metallic particles; the mutual repulsion of the streams was also clearly shown. In all these cases the rays were proved by measurement to leave the surface of the glass of the vacuum tube nearly normally. The article closes with a quotation from an earlier paper (1870) by the same author, upon electrical shadows from the Holtz machine, to a certain extent anticipating the results that have recently excited so much interest.

The paper by Trowbridge shows how pieces of metal can be located, for example, in the human body by cathode photography, based upon a principle analogous to that employed in the Rumford photometer. He used two Crookes' tubes with two terminals at an angle with each other, and excited by a Tesla coil. The author states that by use of the Tesla coil he has succeeded in obtaining pictures in less than a minute. The destruction of the tubes is prevented by placing them in a vessel filled with paraffine oil, while the oil is cooled by snow or ice placed outside.

The third article, by H. A. Rowland, W. R. Carmichael and L. J. Briggs, discusses briefly the sources of the rays. By using a tube of a very high degree of exhaustion it was demonstrated conclusively that the main source of the rays was a minute point on the *anode* nearest to the cathode. At times a minute point of light appeared at this point but not always. Added to this source the whole of the *anode* gave out a few rays. From the cathode no rays whatever came; neither were there any from the glass of the tube where the cathode rays struck it as described by Röntgen. "In the other tubes there seemed to be diffuse sources, probably due in part to the oscillatory discharge, but in no case did the cathode rays seem to have anything to do with the Röntgen rays."

The first article of the number is by J. B. Hatcher upon 'Recent and Fossil Tapirs.' In this he gives a detailed description of the

new species *Protapirus validus*, and also of a number of allied forms. Further he gives a condensed summary of the classification and relations of recent tapirs, with an account of their phylogeny. The article is accompanied by four plates. Another geological article is by Robert Bell, summarizing the proofs of the rise in the land about Hudson Bay. These proofs are of varied character, and the cumulative evidence is so strong that there can hardly be any question as to the conclusion reached. The rise in land has been comparatively rapid, and the elevation is believed to be still going on. O. C. Marsh, in a short article upon the 'Wealden Formation of England,' shows that it is unquestionably to be referred to the Jurassic instead of the Cretaceous, as formerly believed. S. F. Peckham and Laura A. Linton have an article on 'Trinidad Pitch,' in which analyses are given of some twenty-seven specimens obtained at different points in the neighborhood of Pitch Lake, Trinidad. The article presents some important conclusions as to the composition of this material in general. G. R. Putnam describes the results of recent pendulum observations at different stations in the Southern United States, more particularly at New Orleans, Galveston, Austin and Laredo. These show a very slight excess of gravity near the Gulf coast as compared with interior stations; this excess, however, is so small as to indicate a close approach to the condition of hydrostatic equilibrium called for by the principle of isostasy. Otherwise the large accumulation of the sediment in the Gulf, brought down by the Mississippi from its drainage area, would lead one to expect a greater increase in gravity at the points named.

A brief account of a new meteorite from Forsyth county, North Carolina, is given by Dr. E. A. de Schweinitz. F. A. Gooch and A. W. Peirce describe 'a method for the separation of selenium from tellurium, based upon the the difference of the bromides.' F. P. Adams and B. J. Harrington describe some interesting minerals from the nepheline-syenite of Dungannon county, Ontario. One of these is a new variety of hornblende, having a constitution analogous to that of garnet, and peculiar optical properties. The name *Hastingsite* is suggested for it. The other is a titaniferous andradite. S. L. Penfield and J. H. Pratt describe the occurrence of the rare mineral *thaumasite*. This species has been known hitherto only from Sweden and is one of the most remarkable of minerals in composition, being a hydrous silicate-carbonate-sulphate of calcium. It contains 43 % of water and has a specific gravity of only 1.88. The analysis here given confirms those made of the Swedish mineral; the authors suggest a structural formula to explain the anomalous composition, including the fact that the water goes off at four different temperatures.

AMERICAN CHEMICAL JOURNAL, FEBRUARY.

On Halogen Addition Products of the Anilides: By H. L. WHEELER and P. T. WALDEN. The authors find that when certain salts of the anilides are treated with bromine containing hydrobromic acid, perhalides are formed which are analogous to the cæsium and ammonium perhalides.

The Action of the Halogens on the Methylamines: By IRA REMSEN and JAMES F. NORRIS. The formation of a product containing two bromine atoms, by the action of bromine on trimethylamine hydrobromide, led to the study of the action of the halogens on trimethylamine. In the product formed the bromine appears to replace the hydrogen of the hydrobromide. A similar compound containing iodine is formed, and probably one containing both bromine and iodine.

On Silicides: By G. DE CHALMOT. By the use of the electric furnace the author has obtained crystals of copper and silver silicides, which, however, always contain some calcium as an impurity.

Some of the Properties of Liquid Hydriodic Acid: By R. S. NORRIS and F. G. COTTRELL. The authors have prepared pure hydriodic acid by condensing the dry gas in tubes cooled by solid carbon dioxide, and have studied the action of this acid on many metals, oxides, gases and non-metallic elements. This acid does not act on carbonates and in general is less active than the solution of the gas in water.

On the Preparation of Hydrobromic and Hy-

driodic Acids: By J. H. KASTLE and J. H. BULLOCK. The use of naphthalene and bromine is recommended for making hydrobromic acid, and a mixture of resin, iodine and sand for hydriodic acid.

Turmerol: By C. LORING JACKSON and W. H. WARREN. Turmerol, prepared from the crude product by distilling *in vacuo*, when treated with nitric acids yields paratoluic acid. It is considered to be an alcohol containing a benzene ring with methyl and carbon side chains in the para position.

Bromine devivatives of Resorcine: BY C. LORING JACKSON and F. L. DUNLAP. It is not possible to replace two of the bromine atoms in $C_6HBr_3(OC_2H_5)_2$ by hydrogen, unless the hydrogen atom is first replaced by the nitro group. The introduction of a hydroxyl group also facilitates the replacement of the bromine. The ethoxy groups do not weaken the affinity of the bromine as the free tribromresorcine is easily decomposed.

Trinitrophenylmalonic ester: BY C. LORING JACKSON and C. A. SOCH. The method of preparation, reactions and derivatives of picrylmalonic ester, which Dittrich was unable to obtain, are given in this paper.

The artificial production of Asphalt from Petroleum: BY C. F. MABERY and J. H. DYERLEY. After removing the oils used for illuminating purposes, the residue is distilled slowly while air is drawn through. Products of different specific gravity are separated and used for various purposes in which asphalt has been used.

On the Action of Phosphorus Pentachloride on Parasulphaminebenzoic Acid: By IRA REMSEN, R. N. HARTMAN and A. M. MUCHENFUSS. The product formed by the action of phosphorus pentachloride on parasulphaminebenzoic acid, when heated, decomposes in two stages, and the final product contains the nitrogen group in combination with the carbon atom instead of with the sulphone group as at first. Some light is thrown on the nature of this change by these investigations.

This number also contains a review of the work on *Chemical Technology* by GROVES and THORP. Vol. II.

J. ELLIOTT GILPIN.

PSYCHE, MARCH.

THE number is mostly occupied by the Presidential address of Clarence M. Weed on the 'Hibernation of Aphides,' summarizing previous knowledge. J. W. Folsom gives an account of the oviposition of *Thanaos juvenalis*, and a supplement is occupied by descriptions of insects, mostly New Mexican, by T. D. A. Cockerell and C. F. Baker.

SOCIETIES AND ACADEMIES.

THE NEW YORK ACADEMY OF SCIENCES.

AT the meeting of the Geological Section of the New York Academy of Sciences, held on February 17, 1896, the following papers were presented:

The first paper was read by Mr. L. McI. Luqueer, entitled 'Notes on Recent Accessions of Interesting Minerals,' with exhibition of specimens. Mr. Luqueer described in detail the minerals that he had recently discovered at the feldspar quarries in the northeastern part of Westchester county. They include uraninite, autunite, uranophane, washingtonite and the common minerals of pegmatite veins. He showed that the veins occurred in close association with an area of augen-gneiss, regarded as intrustive and now being studied by himself and Mr. Heinrich Ries.

The second paper was by J. F. Kemp, entitled 'The Cripple Creek Gold Mining District of Colorado.' The paper was illustrated by about thirty lantern views, most of which were taken by the speaker during the past summer, and by an extensive series of rocks and ores. After a brief historical review the region was described in detail, without, however, introducing anything essential that is not already contained in the Cripple Creek atlas folio of the United States Geological Survey, which was prepared by Messrs. Cross and Penrose.

J. F. KEMP,
Secretary.

THE TORREY BOTANICAL CLUB.

THE regular meeting of the Torrey Botanical Club was held on Tuesday evening, February 11th. Two new members were elected. Mr. A. A. Heller contributed an interesting paper